

CR. cpp

```
//CR
//ListCS2.txtファイルから直接ListCS2R.txtファイルを作るプログラムCR. cpp

//CR. cpp directly transforms ListC type file ListCS2.txt
//into ListR type file ListCS2R.txt.

#define nmax 1100000 // maximum number of n.
#define mmax 5000 // maximum number of m.
#define tones 40000000 // total number of ones in the
// input coefficient matrix,
which
// must be greater than  $m*n*$ 
// density + safety bytes.

#include <stdio.h>
#include <conio.h>

int main()
{
    char pbyname[101];
    float rdensity;
    int m, n, i, j, k, kk;
    short int cst[nmax+1], ch[nmax+1], rh[mmax+1];
    short int rname[tones+1];
    int jthcol[nmax+1], ithrow[mmax+1];
    int cname[tones+1];

    FILE *listc, *listr, *pc;

    listc=fopen("ListCS2.txt","r");
    listr=fopen("ListCS2R.txt","w");
    pc=fopen("ProbChar.txt","w");

    printf("We start read ListCS2.txt file.¥n");
    printf("Input pbyname within 100 characters.¥n");
    scanf("%s", pbyname);

    fscanf(listc, "%d %d", &m, &n);

    //fscanf(listc, "%s", pbyname);

    jthcol[0]=0;
    ithrow[0]=0;

    for (j=1; j<=n; j++)
    {
        fscanf(listc, "%d %d", &cst[j], &ch[j]);
        jthcol[j]=jthcol[j-1]+ch[j];

        for (k=jthcol[j-1]+1; k<=jthcol[j]; k++)
        {
            fscanf(listc, "%d", &rname[k]);
        }
    }
}
```

CR. cpp

```
//if (j%10000==0) printf("j= %d¥n", j);
}

rdensity = float((k-1)) / ( float(m) * float(n) );
//printf("rdensity_ok¥n");

kk=0;
for (i=1; i<=m; i++)
{
    for (j=1; j<=n; j++)
    {
        for (k=jthcol[j-1]+1; k<=jthcol[j]; k++)
        {
            if (rname[k]==i)
            {
                kk++;
                cname[kk]=j; //printf("cname[%d]=
%d", kk, cname[kk]); getch();
                break;
            }
        }
    }

    ithrow[i]=kk; //printf("ithrow[%d]= %d¥n", i, ithrow[i]); //getch();
    if (i%100==0) printf("i= %d (m=%d) ¥n", i, m);
}

//printf("i_roop_ok¥n");

fprintf(pc, "%s%dX%drdensity%fkk¥n", pbnam, m, n, rdensity);
fprintf(listr, " %d %d¥n", m, n);

for (j=1; j<=n; j++)
{
    fprintf(listr, " %d", cst[j]);
    if (j%15==0) fprintf(listr, "¥n");
}
if (n%15!=0) fprintf(listr, "¥n");

for (i=1; i<=m; i++)
{
    fprintf(listr, " %d", ithrow[i]-ithrow[i-1]);

    for (kk=ithrow[i-1]+1; kk<=ithrow[i]; kk++)
    {
        fprintf(listr, " %d", cname[kk]);
    }
    fprintf(listr, "¥n");
}

fclose(listc);
fclose(listr);
```

```
    fclose(pc);  
}
```